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National **Forest Health Monitoring**

Assessing the Condition of our Forest Resources

United States Department of Agriculture

Forest Service

United States Environmental Protection Agency

National Association of State Foresters

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In recent years, there has been considerable interest in how forest pests, air pollution, other stressors, and management methods are affecting the health of our Nation's forests. In response to these concerns, the National Forest Health Monitoring Program was established which measures, interprets, and reports the effects of these factors.

Monitoring consists of repeated forest measurements to determine current conditions, discover unusual changes, and predict future forest health consequences. Forests can be considered "healthy" when there is a balance between growth and mortality, and the forest has the resiliency to react and overcome various forest impacts. Potential forest stressors include insects, pathogens, weather, climate, air pollution, and other influences.

Supporting Legislation

- Forest Ecosystems and Atmospheric Research Act of 1988.
- Food, Agriculture, Conservation, and Trade Act of 1990 (Farm Bill).

Program Goals

- To detect changes and trends in forest conditions.
- To report and interpret these changes at a multistate level.

Objectives

- To characterize forest conditions.
- To characterize the major potential forest stressors.
- To quantify changes in forest conditions and forest stressors.
- To analyze the relationships between changes in forest conditions and potential forest stressors.
- To provide information to guide management and protection activities.

Implementation

- 1990 - Forest Health Monitoring program began in the 6 New England states.
- 1991 - The program expanded to include New Jersey, Maryland, Delaware, Virginia, Georgia, and Alabama.
- 1992 - California and Colorado were added to the program.
- Future - Plans are to add new states every year until Forest Health Monitoring is implemented nationwide.

General Forest Distribution



Approximately 12,600 plots in the continental United States, with an estimated 4,500 forested plots.

Plot Distribution Example
Maine--137 total, 121 forested

Three Major Levels of Forest Health Monitoring

Detection Monitoring

Determines annual differences from baseline conditions or trends. Initial design and implementation consists of:

- a plot component which provides information from a network of permanent plots distributed throughout the Nation's forested areas,
- a survey component which provides information from routine and special forest pest surveys; forest inventories; and weather, climate, and air pollution monitoring information.

Within the permanent plot network, information is recorded about the location, topography, land use, and forest type. Annually or periodically, information about understory vegetation, tree seedlings, saplings, and overstory trees is recorded. Each tree is permanently marked, and its condition is evaluated based on crown shape, fullness, and presence of insect, disease, and/or weather damage.


Annual reports are prepared describing the condition of the forest resource for state, regional, and national needs.

Evaluation Monitoring

Evaluation monitoring is the process for determining cause, extent and severity of changes in forest health status that could not be obtained in detection monitoring. Surveys to evaluate the red spruce and sugar maple resource are examples of evaluation monitoring that have been implemented.

Intensive-Site Ecosystem Monitoring

Defines interactions and predicts future conditions. It provides the most detailed, long term data for ecosystem research to determine cause, predict rates of change in forest conditions, and identify responses. Several areas will be selected nationwide representing various forest types.



Participants

- ◇ National Association of State Foresters
- ◇ State Forestry Agencies
- ◇ State Agriculture Agencies
- ◇ Other State Agencies
- ◇ USDA Forest Service
 - Research
 - State and Private Forestry
 - National Forest System
- ◇ US Environmental Protection Agency
(Environmental Monitoring and
Assessment Program)
- ◇ Tennessee Valley Authority
- ◇ USDA Soil Conservation Service
- ◇ USDI Bureau of Land Management

For Further Information Contact:

